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REMARKS

Claims 1-36 are pending in the present Application. Claims 8-10 and 28-31 have been canceled, claims 1, 2, 3, 5, 6, 11, 14, 18, 19, 20, 22, 25, 26, 27, 32, 33, 35, and 36 have been amended, and claim 37 has been added, leaving Claims 1-7, 11-27, and 32-37 for consideration upon entry of the present Amendment.

Claims 1, 11, 18, 25, 32, and 35 have been amended to include the limitations that the claimed purified or isolated HSV recombinase comprises an alkaline nuclease "comprising an amino acid sequence which is at least 90% identical to a Herpes simplex virus-1 UL12 alkaline nuclease of SEQ ID NO: 2" and a single stranded DNA binding polypeptide "comprising an amino acid sequence which is at least 90% identical to a Herpes simplex virus-1 ICP8 single stranded DNA binding polypeptide of SEQ ID NO: 4."

Claims 3, 20, and 27 have been amended to include the limitations that the claimed purified or isolated HSV recombinase comprises an alkaline nuclease "comprising an amino acid sequence which is at least 95% identical to a Herpes simplex virus-1 UL12 alkaline nuclease of SEQ ID NO: 2" and a single stranded DNA binding polypeptide "comprising an amino acid sequence which is at least 95% identical to a Herpes simplex virus-1 ICP8 single stranded DNA binding polypeptide of SEQ ID NO: 4."

Claims 2, 19, 26, 33, and 36 have been amended to claim a HSV recombinase comprising SEQ ID NO: 2 and SEQ ID NO: 4.

Claim 22 has been amended to include the limitations that the claimed host cell comprises first polynucleotide "comprising a nucleotide sequence which is at least 90% identical to a Herpes simplex virus-1 UL12 polynucleotide of SEQ ID NO: 1" and a second polynucleotide "comprising a nucleotide sequence which is at least 90% identical to a Herpes simplex virus-1 ICP8 polynucleotide of SEQ ID NO: 3."

Support for these amendments can at least be found in the claims as originally filed as well as in Paragraphs [0008], [0032], and [0034] as originally filed.

Claims 5 and 6 have been amended to depend from Claim 1.

Claim 11 has been further amended to correct a typographical error such that the term "target" has replaced "donor " in defining target homology regions. Support for this amendment can at least be found in Paragraph [0061] as originally filed.

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Claim 14 has been amended to correct a typographical error such that the term "herpes" has been capitalized as "Herpes." Support for this amendment can at least be found in Claim 14 as originally filed.

Claim 18 has been further amended to include the term "target" to describe the target homology regions on the target polynucleotide. Support for this amendment can at least be found in Paragraph [0061] as originally filed.

Claim 32 has been further amended to include the term "donor" to describe the donor homology regions on the donor polynucleotide. Support for this amendment can at least be found in Paragraph [0058] as originally filed.

Claim 35 has been amended to include the term "donor" to describe the donor homology regions on the donor polynucleotide. Support for this amendment can at least be found in Paragraph [0058] as originally filed.

Claim 37 has been added to further claim the present invention. Support for this new claim can at least be found in Claim 1 as originally filed as well as in Paragraphs [0030] and [0031] as originally filed.

No new matter has been introduced by these amendments or new claims. Reconsideration and allowance of the claims are respectfully requested in view of the above amendments and the following remarks.

Claim Rejections Under 35 U.S.C. § 112, First Paragraph

Claims 1-2, 4-7, 11-13, 15-16, 18-19, 21, 23-26, and 32-36 stand rejected under 35 U.S.C. § 112, first paragraph, as allegedly containing subject matter which was not described in the Specification in such a way as to reasonably convey to one skilled in relevant art that the inventors, at the time the application was filed, had possession of the claimed invention. Applicants respectfully traverse this rejection.

The Examiner has stated that the present specification teaches that the presence of UL12 and ICP8 together will cause recombination of a polynucleotide but "does not teach that any alkaline nuclease or any DNA binding polypeptide will cause recombination." (Office Action dated October 5, 2005 page 2).

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As currently amended, the claims are directed to a purified and isolated HSV recombinase comprising HSV-1 UL12 and ICP8 and their homologues wherein the recombinase has polynucleotide strand exchange activity. As indicated by the Examiner, the specification expressly discloses UL12 and ICP8. Applicants respectfully submit that the present application does not claim a recombinase comprising "any alkaline nuclease or any DNA binding polypeptide" as alleged by the Examiner, but selectively claims a recombinase comprising an alkaline nuclease and a single stranded DNA binding polypeptides that are at least 90% identical to HSV-1 UL12 and ICP8, respectively, which has polynucleotide strand exchange activity. Therefore, Applicants submit that the currently amended claims satisfy the requirements of 35 U.S.C. § 112, first paragraph. Reconsideration and withdrawal of this rejection are respectfully requested.

Claim Rejections Under 35 U.S.C. § 102(b)

Claims 1-4, 6-7, 18-24 stand rejected under 35 U.S.C. § 102(b), as allegedly anticipated by U.S. Patent No. 6,136,538 to Olivo et al. (hereinafter "Olivo"). Applicants respectfully traverse this rejection.

The claims of the present application are directed to a purified or isolated Herpes simplex virus recombinase comprising an alkaline nuclease and a single stranded DNA binding polypeptide, wherein the recombinase has polynucleotide strand exchange activity.

By contrast, Olivo is directed to a recombinant protein expression system that is inducible by a DNA virus. Olivo discloses an expression system comprising a promoter-replicon cDNA construct. (Olivo, Col. 4 ll. 14-32). Olivo discloses using the promoters of various beta (early) genes from Herpes Simplex 1 Virus to provide a herpes virus inducible expression system. (Olivo, Col. 8 line 57 – Col. 9 line 6). Olivo fails to teach or suggest a purified or isolated Herpes simplex virus recombinase.

To anticipate a claim, a reference must disclose each and every element of the claim. *Lewmar Marine v. Varient Inc.*, 3 U.S.P.Q.2d 1766 (Fed. Cir. 1987).

The Examiner has stated that Olivo teaches that Herpes Simplex 1 Virus has genes that express UL12 and UL29, which is also known as ICP8. The Examiner maintains that the instant claims read on Herpes Simplex 1 Virus because Claim 1 requires that the herpes simplex virus

recombinase be purified or isolated but it does not require that the alkaline nuclease or DNA binding polypeptide be purified or isolated. (Office Action dated October 5, 2005 page 3).

Applicants submit that as defined in the present specification, "purified" means "peptides substantially free of cellular material or other contaminating proteins from the cell or tissue source from which the protein is derived." In addition, the term "isolated" encompasses protein preparations in which the protein is expressed from an expression vector. For example, "an isolated HSV recombinase can be in a cell so long as the recombinase in the cell is expressed from an expression vector and not from the virus genome." (Specification, ¶¶ [0030], [0031]). Thus, given the definitions of isolated and purified, the herpes simplex 1 virus does not read on the instant claims. Applicants further submit that the present claims require that the purified or isolated HSV recombinase is active for polynucleotide strand exchange. Olivo fails to teach or suggest this limitation and cannot anticipate the present claims.

For at least these reasons, reconsideration and withdrawal of the foregoing rejections are respectfully requested.

The Examiner states that the term "target polynucleotide would read on any polynucleotide contained within herpes simplex 1." (Office Action dated October 5, 2005, page 3).

As currently amended, Claims 18 to 24 are directed to a kit comprising, *inter alia*, a target polynucleotide that comprises a first target homology region at a first end, a second target homology region at a second end, and an endogenous sequence therebetween. Applicants submit that, as presently amended, the term "target nucleotide" does not read on any polynucleotide contained with HSV-1 since HSV-1 polynucleotides would lack the required limitations of first and second target homology regions.

Applicants appreciate the Examiner's indication of the allowability of Claims 14, 17, and 27 if rewritten in independent form and including the limitations of the intervening claims.

It is believed that the foregoing amendments and remarks fully comply with the Office Action and that the claims herein should now be allowable to Applicants. Accordingly, reconsideration and withdrawal of the objections and rejections and allowance of the case are respectfully requested.

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If there are any additional charges with respect to this Amendment or otherwise, please charge them to Deposit Account No. 06-1130.

Respectfully submitted,

CANTOR COLBURN LLP

By Karen A. LeCuyer
Karen A. LeCuyer, Ph.D.
Registration No. 51,928

Date: January 5, 2006
CANTOR COLBURN LLP
55 Griffin Road South
Bloomfield, CT 06002
Telephone (860) 286-2929
Facsimile (860) 286-0115
Customer No.: 23413